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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/016,438

12/10/2001

Yhean-Sen Lai

LAI 21-8

5341

7590

03/18/2005

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EXAMINER

MEEK, JACOB M

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 03/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/016,438	LAI ET AL.	
	Examiner	Art Unit	
	Jacob Meek	2637	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 December 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 - 19 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2-8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/02</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Objections*

1. Claims 8, 18 are objected to because of the following informalities:

Claim 8, wording regarding structure of echo canceller should be clarified so that four sub-canceller clearly defines what it being claimed.

Claim 18, line 12 reads dat.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gonikberg et al (US Patent 5,864,545).

With regard to claim 1, Gonikberg discloses a modem comprising a phase shifter (see figure 7, 641 and column 8, lines 14 – 24 where Farrow is a known structure of a FIR filter) between 1<sup>st</sup> device and hybrid circuit (see figure 7, 630 & 695, and column 1, lines 44 – 51 where hybrid circuits are inherent in 2 wire circuits); an adaptive equalizer positioned between hybrid circuit and 1<sup>st</sup> device to minimize intersymbol interference in receive signal (see figure 7, 300a, and column 1, lines 24 – 37 where this is interpreted as describing intersymbol interference); a primary echo canceller coupled between 1<sup>st</sup> device and equalizer to remove a 1<sup>st</sup> portion of an echo in the receive signal (see figure 7, 684); a post equalizer echo canceller coupled between 1<sup>st</sup> device and hybrid circuit having an input to receive

transmit signal and an output coupled between equalizer and 1<sup>st</sup> device, post equalizer echo canceller adapted to remove a 2<sup>nd</sup> portion of echo in receive signal (see figure 7, 681 and 310a where this is interpreted as equivalent functionality), post equalizer echo canceller having an adaptive input (see figure 7, 301a and column 9, lines 53 – 65); and a slicer positioned between output of post equalizer echo canceller and 1<sup>st</sup> device, slicer having an output for producing a symbol value which is a representation of current symbol value being supplied at input of receiver by the receive signal (see figure 7, 772, 660 and column 11, lines 9 – 32 where step 4 is interpreted as having a slicing function), the difference between the input and output of slicer being supplied to adaptive inputs of equalizer and echo canceller (see figure 7, 771 and column 10, lines 58 – 64). Gonikberg discloses the invention except for the positioning of the echo canceller between the phase shifter and the hybrid circuit. It would have been an obvious matter of design choice to move the position of the echo canceller from before phase shifter to after the phase shifter since applicant has not disclosed that echo canceller location solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the echo canceller in either location.

***Allowable Subject Matter***

3. Claims 2 – 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
4. The following is a statement of reasons for the indication of allowable subject matter:

Claims 9 – 15 appear to be allowable based on structure disclosed. Gonikberg discloses a 1<sup>st</sup> and 2<sup>nd</sup> algebraic combining unit but is silent on the 3<sup>rd</sup> algebraic unit

connected with the slicer. Bannerjea has the requisite structural elements but is silent on the details of his transmit filter and shows a different placement of the echo canceller.

Claim 16 appears to be allowable based on the specifics of the claimed interconnection structure. Bannerjea contains many of the elements of the claim but lacks details on the specific implementation.

Claims 17 – 19 appear to be allowable based on structure and operation disclosed. Gonikberg is silent with respect to IIR filter element and adjustment of sampling frequency. Bannerjea has the requisite structural elements but is silent on the details of his transmit filter and shows a different placement of the echo canceller.

#### ***Other Cited Prior Art***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Golden (US Patent 5,163,044) discloses many of the structural elements of applicant's invention. Fertner (US Patent 5,793,801) discloses adjustment of sampling frequency of portions of circuitry. Koizumi (US Patent 5,841,809) discloses many of the structural elements of applicant's invention. Cheng (US Patent 5,577,027) discloses many of the structural elements of applicant's invention. Yip (US Patent 5,790,658) discloses many of the structural elements of applicant's invention. Bannerjea (US Patent 6,240,128) discloses the structure of applicant's claimed invention but is silent on some details of the invention.

#### ***Conclusion***

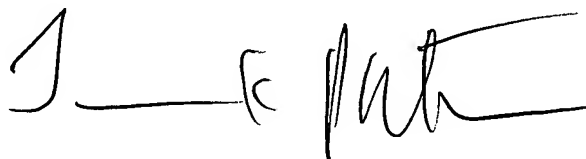
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Meek whose telephone number is (571)272-3013. The examiner can normally be reached on 8:00 - 4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571)272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMM

A handwritten signature in black ink, appearing to read "Jay K. Patel", with a stylized, flowing script.

**JAY K. PATEL**  
**SUPERVISORY PATENT EXAMINER**